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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/627,274

07/25/2003

Artur Andrzejak

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06/28/2006

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EXAMINER

FREJD, RUSSELL WARREN

ART UNIT

PAPER NUMBER

2128

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/627,274

Applicant(s)

ANDRZEJAK ET AL.

Examiner

Russell Frejd

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4.20.05.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

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***Examination of Application #10/627,274***

1. Claims 1-42 of application 10/627,274, filed on 25-July-2003, are presented for examination, in response to the Preliminary Amendment received 29-March-2004.

***Specification Objections***

2. The disclosure is objected to because of the inclusion of the Attorney docket numbers in the section entitled Related Applications. The examiner respectfully requests that the information be updated to reflect the proper U.S. Application numbers.

***Claim Rejections under 35 U.S.C. § 101***

3. 35 U.S.C. 101 reads as follows:  
Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.
- 3.1 Claims 1-42 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The invention claims (claim 1 preamble), "*A method of determining a variable to receive a value change and a value for the variable as part of a local search solution to an integer programming problem having polynomial terms of at least second order.*"
- 3.2 MPEP Section 2106(IV)(B)(2)(b)(ii) provides that a statutory computer process is determined not by how the computer performs the process, but by what the computer does to achieve a practical application with a useful, concrete and tangible result. For example, a

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computer process that simply calculates a mathematical algorithm that models noise is nonstatutory, while a claimed process for digitally filtering noise employing the mathematical algorithm is statutory. The long line of cases in this area that are referred to in MPEP Section 2106(IV)(B)(2)(b)(ii) exemplify this requirement, by utilizing in the claim language, terms such as controlling, executing, changing and removing. In view of the aforementioned requirement and the interim guidelines for 101 eligibility, the Examiner respectfully contends that the claim language of independent claims 1, 20-22, 41 and 42, do not claim a practical application with a tangible result, that language claiming: (in claim 1) **selecting** (emphasis added) an unsatisfied constraint; **creating** stores for allowable changes of value for the variables in the unsatisfied constraint; **parsing** through the unsatisfied constraint by term and for each variable in the term updating the stores with a change in the term for each of the allowable changes of the value while maintaining other variables constant; and **choosing** the variable to receive the value change and the value for the variable based upon the store which meets an improvement criterion.

**3.3** For at least these reasons, the Examiner respectfully posits that the claims of the present invention do not meet the criteria for a statutory process. Accordingly, the claims are determined to be a method of determining a variable to receive a value change and a value for the variable as part of a local search solution to an integer programming problem having polynomial terms of at least second order, consisting solely of mathematical operations, converting one set of numbers into another set of numbers, whereby the method does not manipulate appropriate subject matter, and thus cannot constitute a statutory process (MPEP Section 2106(IV)(B)(2)(c)).

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**3.4** The Examiner also posits that the method of the present invention is computer executable software code, or a program per se, consisting of software instructions [see claims 22, 41 and 42] that implement the method of determining a variable to receive a value change and a value for the variable as part of a local search solution to an integer programming problem having polynomial terms of at least second order. For at least this reason, the software instructions of the present invention do not meet the criteria for a statutory process (MPEP Section 2106(IV)(B)(2)(c)).

**3.5** In view of the aforementioned requirement, the Examiner respectfully contends that the claim language of independent claims 22, 41 and 42 do not claim a practical application, that language claiming a computer readable memory comprising computer code. The memory holding the computer code is determined to recite data embodied on a computer-readable medium. However, the data does not impart functionality to either the data as claimed or to the computer. As such, the claimed invention recites non-functional descriptive material, *i.e.*, mere data. Non-functional descriptive material is merely carried on the medium, it is not structurally and functionally interrelated to the medium, and thereby does not manipulate, or execute, appropriate subject matter, and thus cannot constitute a statutory process (MPEP Section 2106(IV)(B)(2)(c)).

### ***Claim Rejections under 35 U.S.C. § 102***

**4.** The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**4.1** Claims 1, 6-8, 10, 12, 13, 15, 17, 19, 21, 22, 27-29, 31, 33, 34, 36, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Walser, USP 6,031,984.

**4.2** Walser discloses: in regard to claims 1, 21, 22 and 42, a method of determining a variable to receive a value change and a value for the variable as part of a local search solution to an integer programming problem [c. 2, ln. 2] having polynomial terms of at least second order comprising the steps of: selecting an unsatisfied constraint; creating stores for allowable changes of value for the variables in the unsatisfied constraint; parsing through the unsatisfied constraint by term and for each variable in the term updating the stores with a change in the term for each of the allowable changes of the value while maintaining other variables constant; and choosing the variable to receive the value change and the value for the variable based upon the store which meets an improvement criterion [c. 3, lns. 1-20].

Claims 6-8 and 27-29: the allowable values for at least one of the variables comprise a subset of integer values near an existing value for the variable [c. 2, ln. 67].

Claim 10: the improvement criterion comprises the store which improves the unsatisfied constraint and which improves an overall solution at least as much as other stores [c. 8, lns. 8-10].

Claims 12 and 33: determining that none of the stores improve an overall solution [c. 3, lns. 18-19].

Claims 13, 31 and 34: the improvement criterion comprises the store which improves the unsatisfied constraint at least as much as other stores [c. 5, lns. 66-67].

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Claims 15 and 36: the improvement criterion comprises improvement criteria [c. 6, ln. 2].

Claim 17: if the optimality criteria are not met, further comprising determining whether to perform an additional iteration and if so, returning to the step of changing the value of the variable, wherein the new assigned values become the assigned values [c. 6, lns. 3-13].

Claim 19: if the variables are not to be reinitialized, outputting a no solution found message [c. 3, lns. 18-19].

### ***Claim Objections***

5. Claims 2-5, 9, 11, 14, 16, 18, 23-26, 30, 32, 35, and 37-40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Allowed Claims***

6. Claims 20 and 41 are deemed allowable over the prior art of record at this time, pending resolution of any rejections noted above.

### ***Response Guidelines***

7. A shortened statutory period for response to this action is set to expire **3 (three) months and 0 (zero) days** from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02, 710.02(b)).

**7.1 Any response to the Examiner in regard to this non-final action should be**

**directed to:** Russell Frejd, telephone number (571) 272-3779, Monday-Friday from 0530 to 1400 ET, or the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279. Inquires of a general nature or

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relating to the status of this application should be directed to the TC2100  
Group Receptionist (571) 272-2100.

**mailed to:** Commissioner of Patents and Trademarks  
P.O. Box 1450, Alexandria, VA 22313-1450

**or faxed to:** (571) 273-8300

Hand-delivered responses should be brought to the Customer Service Window, Randolph  
Building, 401 Dulany Street, Alexandria, VA, 22314.

**Date:** 23-June-2006



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**RUSSELL FREJD  
PRIMARY EXAMINER**